1. (Original) A cleaning assembly comprising:

a disposable cleaning implement having a cleaning element mounted to a fitment having an elongated post;

an elongated maneuvering wand having a handle portion and a distal implement attachment end thereof; and

a gripping mechanism coupled to the wand attachment end, and configured to releasably grip the fitment post to mount the cleaning implement;

wherein, said gripping mechanism and said maneuvering wand cooperating to substantially limited pivotal movement of a longitudinal axis of the fitment post, relative a longitudinal axis of said gripping mechanism to not more than about 0 degrees to about 25 degrees when said fitment post is subjected to forces radial to said longitudinal axis of the fitment post.

2. (Original) The cleaning assembly according to claim 1, wherein

said cleaning element is at least partially liquid soluble or liquid dispersible.

3. (Original) The cleaning assembly according to claim 1, wherein

said fitment includes a back plate upon which said cleaning element is mounted, said back plate being configured to provide lateral support to said cleaning element during use thereof, and said fitment post extending longitudinally therefrom.

4. (Original) The cleaning assembly according to claim 1, wherein

said fitment post includes a retaining barb having a neck portion and a retaining head, said neck portion having a transverse cross-sectional dimension smaller than that of the fitment post and of the retaining head.

5. (Original) The cleaning assembly according to claim 4, wherein

said gripping mechanism includes an expandable collet device adapted for selective movement between a gripping position, gripping the fitment retaining barb, and a release position, enabling selective axial release of the retaining head of the fitment retaining barb from the gripping mechanism.

6. (Original) The cleaning assembly according to claim 5, wherein

said attachment end of the maneuvering wand defining a wand opening into a cavity of said wand, and said wand opening being formed and dimensioned for axial insertion of the fitment post therein, and

said collet device disposed in said cavity, and defining a mouth portion thereof in coaxial alignment with said wand opening for receipt of said fitment retaining barb therethrough.

7. (Original) The cleaning assembly according to claim 6, wherein

said mouth portion of the collet device having a transverse cross-sectional dimension smaller than that of the retaining head, in the gripping position, to enable said axial retention by the collet device, and said mouth portion having a transverse cross-sectional dimension larger than that of the retaining head, in the release position, to enable axial release thereof by the collet device.

8. (Original) The cleaning assembly according to claim 7, wherein

said collet device includes a proximal base portion, and a plurality of resilient finger members extending distally toward said wand opening, and each said resilient finger member being cantilever mounted thereto for radial movement of a distal tip of the respective finger member between the gripping position and the release position.

9. (Original) The cleaning assembly according to claim 8, wherein

said fitment includes a back plate upon which said cleaning element is mounted, said back plate being configured to provide lateral support to said cleaning element during use thereof, and said fitment post extending longitudinally therefrom.

10. (Original) The cleaning assembly according to claim 9, wherein

said back plate being configured such that a force required to bend said back plate is less than that required to radially displace one or more of the finger members toward the release position.

11. (Original) The cleaning assembly according to claim 10, wherein

said back plate is disk-shaped, having a longitudinal axis that is substantially co-axial with the longitudinal axis of the fitment post.

12. (Original) The cleaning assembly according to claim 11, wherein

said back plate defines one or more flexible zone adapted to reduce the stiffness of said back plate plurality of stiffness reducing grooves spaced-apart about the plate longitudinal axis thereof, and extending generally radially outward from an interior portion of said disk.

13. (Original) The cleaning assembly according to claim 12, wherein

said one or more flexible zones extends in a swirl pattern about the plate longitudinal axis.

14. (Original) The cleaning assembly according to claim 8, wherein

the distal tip portions of the finger members cooperating to define said mouth portion, said finger members further being positioned generally radially around a longitudinal axis of the collet device in a manner collectively defining a collet recess therein formed for receipt of said retaining head of the fitment when in the gripping position.

15. (Original) The cleaning assembly according to claim 14, wherein

each said distal tip of the finger member includes a tine portion extending radially inward, and defining a proximal facing contacting surface such that, when the retaining head of the fitment is positioned in the gripping position of the collet device, the contacting surfaces of the respective tine portions substantially prevent axial pull-out in a direction away from the gripping mechanism.

16. (Original) The cleaning assembly according to claim 15, wherein

the neck portion and the retaining head of the fitment intersect at a substantially planar annular shoulder portion extending substantially perpendicular to the longitudinal axis of the fitment post, and

said contacting surfaces of the tine portions are configured to extend substantially perpendicular to the longitudinal axis of the collet device when situated in the gripping position thereof.

17. (Original) The cleaning assembly according to claim 6, wherein

said retaining head of fitment includes a curvilinear cam surface, and

each said tine portion of each distal tip includes a distal facing cam surface tapering radially outwardly such that upon contact of the cam surfaces of the distal tip portions with the curvilinear cam surface of the retaining head during axial insertion of the fitment post into the wand opening, said distal tip portions are caused to radially expand until the mouth portion of the collet device is sufficiently large to permit axial passage of the retaining head of the retaining barb therethrough.

18. (Original) The cleaning assembly according to claim 6, wherein

said gripping mechanism further includes a plunger mechanism selectively engaging the collet device for movement between the gripping position and the release position.

19. (Original) The cleaning assembly according to claim 18, wherein

said plunger mechanism includes a plunger head adapted for selective reciprocating movement thereof along the longitudinal axis of the collet device between a disengaged condition, corresponding to the gripping position of the collet device, and an engaged condition, corresponding to the release position of the collet device

20. (Original) The cleaning assembly according to claim 19, wherein

said gripping mechanism includes a release device coupled to the plunger mechanism for selective movement of the plunger head between the disengaged and the engaged condition.

21. (Original) The cleaning assembly according to claim 20, wherein

said collet device includes a proximal base portion, and a plurality of resilient finger members extending distally toward said wand opening, and each said resilient finger member being cantilever mounted thereto for radial displacement of a distal tip of the respective finger member between the gripping position and the release position.

22. (Original) The cleaning assembly according to claim 21, wherein

the distal tip portions of the finger members cooperating to define said mouth portion, said finger members further being positioned generally radially around a longitudinal axis of the collet device in a manner collectively defining a collet recess therein formed for receipt of said retaining head of the fitment when in the gripping position.

23. (Original) The cleaning assembly according to claim 22, wherein

said base portion of the collet device defining a proximal opening into said collet recess, and

said plunger head having a transverse cross-sectional dimension to extend through said proximal opening of the collet device and into said collet recess for selective reciprocating movement thereof along the longitudinal axis of the collet device between the disengaged condition, corresponding to gripping position of the collet device, and the engaged condition wherein a cam surface of the plunger head contacts an opposed underside displacement surface of the finger members causing radial movement the respective contacting regions thereof to move radially outward from the gripping position toward the release position.

24. (Original) The cleaning assembly according to claim 23, wherein

each said underside displacement surface includes at least two spaced-apart upstanding contact ribs extending in a direction longitudinal to the collet device, each said contact rib cooperating with the cam surface of the plunger head to reduce frictional contact therebetween as the plunger head reciprocates between the disengaged condition and the engaged condition.

25. (Original) The cleaning assembly according to claim 24, wherein

said cam surface of said plunger head is convex-shaped to further reduce frictional contact between with said contact ribs as the plunger head reciprocates between the disengaged condition and the engaged condition.

26. (Original) The cleaning assembly according to claim 25, wherein

a contact angle between said cam surface of said plunger head and the contact ribs of the underside displacement surfaces is in the range of between about three (3) degrees per side to about twenty (20) degrees per side.

27. (Original) The cleaning assembly according to claim 19, wherein

said release device includes a slide switch slideably mounted to the maneuvering wand for operation at the handle portion between the disengaged condition and the engaged condition.

28. (Original) The cleaning assembly according to claim 27, wherein

said release device further includes a pushrod extending through said wand cavity from proximate the handle portion to proximate the attachment portion, a distal end thereof being mounted to the plunger head, and an opposite proximal end thereof being mounted to the slide switch for translation of movement from the slide switch to the plunger head.

29. (Original) The cleaning assembly according to claim 28, further including:

a biasing device cooperating with the release device to bias the plunger mechanism toward the disengaged condition, corresponding to the gripping position of the gripping mechanism.

30. (Original) The cleaning assembly according to claim 28, wherein

said maneuvering wand is gradually curved, and said pushrod is sufficiently flexible to enable axial movement thereof through the wand cavity between the disengaged condition and the engaged condition, and sufficiently stiff to enable the plunger head to move from the gripping position to the release position.

31. (Original) The cleaning assembly according to claim 30, wherein

said maneuvering wand includes a plurality of support bearings spaced-apart along said wand cavity, and cooperating with the pushrod to enable unobstructed axial movement thereof between the disengaged condition and the engaged condition.

32. (Original) The cleaning assembly according to claim 31, wherein:

each said support bearing is plate-like, and includes a bearing surface defining a respective aperture enabling reciprocal passage of the pushrod therethrough.

33. (Original) The cleaning assembly according to claim 32, wherein:

each bearing surface of said support bearing is convex shaped to reduce frictional contact with the pushrod during movement between the disengaged condition and the engaged condition.

34. (Original) The cleaning assembly according to claim 1, wherein

said attachment end of the maneuvering wand defining a wand opening into a cavity of said wand, said gripping mechanism being disposed in said cavity proximate said wand opening, and said wand opening being formed and dimensioned for axial insertion of the fitment post therein, and said assembly further including:

an anti-cam out feature adapted to radially engage the fitment post, when in the gripping mechanism is in a gripping position releasably gripping the fitment post, to substantial limit pivotal movement of the longitudinal axis of the fitment post, relative the longitudinal axis of said wand opening, to not more than said about 0 degrees to said about 25 degrees when said fitment post is subjected to forces radial to said longitudinal axis.

35. (Original) The cleaning assembly according to claim 34, wherein

said anti-cam out feature includes a distal annular rib portion having a first contact surface extending substantially circumferentially around a first portion of the fitment post when oriented in the gripping position, said first contact surface having a transverse cross-sectional dimension substantially similar to a transverse cross-sectional dimension of the first portion of said fitment post such that a tolerance therebetween in the range of about 0.001 inch to about 0.04 inch.

36. (Original) The cleaning assembly according to claim 35, wherein

said anti-cam out feature further includes a proximal annular rib portion, spaced-apart from said distal annular rib portion, having a second contact surface extending substantially circumferentially around a second portion of the fitment post when oriented in the gripping position, said second contact surface having a transverse cross-sectional dimension substantially similar to a transverse cross-sectional dimension of the second portion of said fitment post.

37. (Original) The cleaning assembly according to claim 36, wherein

said first contact surface and said second contact surface are spaced-apart along the wand opening longitudinal axis by an axial distance in the range of about 0.15 inch to about 0.25 inch.

38. (Original) The cleaning assembly according to claim 37, wherein

said distal annular rib portion is positioned substantially proximate the wand opening.

39. (Original) The cleaning assembly according to claim 36, further including:

a seal device positioned in a gap between the distal annular rib portion and the proximal annular rib portions, said seal device cooperating with said fitment post when in the gripping position such that a fluid-tight seal is formed therebetween to prevent fluid flow into said cavity.

40. (Original) The cleaning assembly according to claim 36, wherein

said fitment retaining barb includes a neck portion and a retaining head, said second portion of the fitment post tapering inwardly and mounted to said neck portion, said neck portion further having a transverse cross-sectional dimension smaller than that of the fitment post and of the retaining head, and

said proximal annular rib portion tapering inwardly at substantially the same slope as said second portion of the fitment post such that said second portion substantially seats against said proximal annular rib portion when the fitment retaining barb is positioned in the gripping position.

41. (Original) The cleaning assembly according to claim 1, further including:

a seal device positioned distal to said gripping mechanism and proximal to said wand opening, said seal device cooperating with said fitment post when in the gripping position such that a fluid-tight seal is formed therebetween to prevent fluid flow into said cavity.

42. (Original) The cleaning assembly according to claim 41, wherein

said seal device is provided by an O-ring.

43. (Original) The cleaning assembly according to claim 1, wherein

said pivotal movement of the longitudinal axis of the fitment post, relative the longitudinal axis of said gripping mechanism, is substantially limited to not more than about 0 degrees to about twelve (12) degrees.

44. (Currently Amended) A cleaning tool assembly comprising:

~~adapted to removably mount~~ a cleaning implement adapted to removably mount ~~thereto~~ to said cleaning tool assembly, said cleaning implement including a cleaning element mounted to a fitment having an elongated, axially extending post terminating at a barb portion thereof~~;~~ ~~said tool assembly comprising:~~

an elongated maneuvering wand having a handle portion and a distal implement attachment end thereof,

a gripping mechanism coupled to the wand attachment end, and configured to releasably grip the barb portion of the fitment post to releasably mount the cleaning implement to the maneuvering wand in a gripping position; and

an anti-cam out feature adapted to radially engage the fitment post when the gripping mechanism is positioned in the gripping position, and when said cleaning implement is subjected to a load radial to the longitudinal axis of the fitment post such that said fitment post is substantially limited to pivotal movement of the longitudinal axis of the fitment post, relative the longitudinal axis of said gripping mechanism, to not more than about 0 degrees to about 25 degrees.

45. (Original) The cleaning tool assembly according to claim 44, wherein

said anti-cam out feature includes a distal annular rib portion having a first contact surface extending substantially circumferentially around a first portion of the fitment post when in the gripping position of said gripping mechanism, said first contact surface having a transverse cross-sectional dimension substantially similar to a transverse cross-sectional dimension of the first portion of said fitment post such that a tolerance therebetween in the range of about 0.001 inch to about 0.040 inch.

46. (Original) The cleaning tool assembly according to claim 45, wherein

said first contact surface extends substantially continuously around said first portion of the fitment post.

47. (Original) The cleaning tool assembly according to claim 45, wherein

said first contact surface extends non-continuously around said first portion of the fitment post.

48. (Original) The cleaning tool assembly according to claim 45, wherein

said anti-cam out feature further includes a proximal annular rib portion, spaced-apart from said distal annular rib portion, having a second contact surface extending substantially circumferentially around a second portion of the fitment post when said gripping mechanism is in the gripping position, said second contact surface having a transverse cross-sectional dimension substantially similar to a transverse cross-sectional dimension of the second portion of said fitment post.

49. (Original) The cleaning tool assembly according to claim 48, wherein

said first contact surface and said second contact surface extend substantially continuously around said first portion and said second portion, respectively, of the fitment post.

50. (Original) The cleaning tool assembly according to claim 48, wherein

said first contact surface and said second contact surface extend non-continuously around said first portion and said second portion, respectively, of the fitment post.

51. (Original) The cleaning tool assembly according to claim 48, wherein

said attachment end of the maneuvering wand defining a wand opening into a cavity of said wand, and said wand opening being formed and dimensioned for axial insertion of the fitment post therein, and

said distal annular rib portion is positioned substantially proximate the wand opening.

52. (Original) The cleaning tool assembly according to claim 51, further including:

a seal device positioned in a gap between the distal annular rib portion and the proximal annular rib portions, said seal device cooperating with said fitment post when in the gripping position such that a fluid-tight seal is formed therebetween to prevent fluid flow into said cavity.

53. (Original) The cleaning tool assembly according to claim 44, further including:

said attachment end of the maneuvering wand defining a wand opening into a cavity of said wand, and said wand opening being formed and dimensioned for axial insertion of the fitment post therein, and

a seal device positioned distal to said gripping mechanism and proximal to said wand opening, said seal device cooperating with said fitment post when in the gripping position such that a fluid-tight seal is formed therebetween to prevent fluid flow into said cavity.

54. (Original) The cleaning tool assembly according to claim 53, wherein

said seal device includes an O-ring.

55. (Original) The cleaning tool assembly according to claim 44, wherein

said attachment end of the maneuvering wand defining a wand opening into a cavity of said wand, and said wand opening being formed and dimensioned for axial insertion of the fitment post therein, and

said gripping mechanism an expandable collet device disposed in said cavity, and adapted for selective movement between the gripping position and a release position, enabling selective axial removal of the fitment from the gripping mechanism.

56. (Original) The cleaning tool assembly according to claim 55, wherein

said collet device is biased toward the gripping position.

57. (Original) The cleaning tool assembly according to claim 56, wherein

said collet device defining a mouth portion in substantial axial alignment with said wand opening, said mouth portion having a transverse cross-sectional dimension smaller than that of the retaining barb for axial retention thereof by the collet device when in the gripping position, and said mouth portion having a transverse cross-sectional dimension larger than that of the retaining barb for axial release thereof by the collet device when in the release position.

58. (Original) The cleaning tool assembly according to claim 57, wherein

said collet device includes a plurality of resilient finger members extending distally toward said wand opening, and each said finger member having a distal tip which cooperate with one another to define said mouth portion, said finger members further being positioned generally radially around a longitudinal axis of the collet device in a manner collectively defining a collet recess therein formed for receipt of said barb portion of the fitment when in the gripping position.

59. (Original) The cleaning tool assembly according to claim 58, wherein

said collet device further includes a proximal base portion defining a proximal opening into the collet recess, and each said resilient finger member being cantilever mounted thereto and extending distally therefrom for radial movement of the distal tip of the respective finger member between the gripping position and the release position.

60. (Original) The cleaning tool assembly according to claim 59, wherein

each said distal tip of the finger member includes a tine portion extending radially inward, and defining a proximal facing contacting surface such that, when the fitment post is positioned in the gripping position of the collet device, the contacting surfaces of the respective

tine portions substantially prevent axial pull-out in a direction away from the gripping mechanism.

61. (Original) The cleaning tool assembly according to claim 60, wherein

each said tine portion of each distal tip includes a distal facing cam surface tapering radially outwardly such that upon contact of the retaining barb with the cam surfaces of the distal tip portions during axial insertion of the fitment post into the wand opening and toward the gripping mechanism, said distal tip portions are caused to radially expand until the mouth portion of the collet device is sufficiently large to permit axial passage of the retaining barb therethrough.

62. (Original) The cleaning tool assembly according to claim 61, wherein

the outward taper of said distal facing cam surface is convex shaped.

63. (Original) The cleaning tool assembly according to claim 59, further including:

a plurality of longitudinally extending alignment webs protruding radially into the wand cavity and spaced-apart radially about the wand opening longitudinal axis thereof, each said alignment web being aligned in a slot formed between two adjacent finger members of the collet device during movement between the gripping position and the release position.

64. (Original) The cleaning tool assembly according to claim 63, wherein

said alignment webs extend radially from the interior walls of the maneuvering wand defining the wand cavity thereof.

65. (Original) The cleaning tool assembly according to claim 64, wherein

said base portion includes a radially extending annular lip, and

said interior wall of said maneuvering wand further defines an grooved formed and dimensioned for receipt of said annular lip therein to substantially prevent relative axial movement between said collet device and said maneuvering wand.

66. (Original) The cleaning tool assembly according to claim 59, wherein

said gripping mechanism further includes a plunger mechanism cooperating with the collet device, and movable between a disengaged condition, corresponding to gripping position of the collet device, and an engaged condition, displacing the finger members radially outward,

corresponding to the release position.

67. (Original) The cleaning tool assembly according to claim 66, wherein

said plunger mechanism includes a plunger head extending through said proximal opening of the collet device and into said collet recess for selective reciprocating movement thereof along the longitudinal axis of the collet device between the disengaged condition, corresponding to gripping position of the collet device, and the engaged condition wherein a cam surface of the plunger head contacts an opposed underside displacement surface of the finger members causing radial movement the respective contacting regions thereof to move radially outward from the gripping position toward the release position.

68. (Original) The cleaning tool assembly according to claim 67, wherein

said cam surface of said plunger head, in the gripping position, is out contact with the respective, opposed underside displacement surface of said finger members.

69. (Original) The cleaning tool assembly according to claim 67, wherein

said underside displacement surfaces of said finger members collectively define a frusto-conical-shaped collet recess tapering inwardly from the proximal opening to the distal mouth portion thereof.

70. (Original) The cleaning tool assembly according to claim 69, wherein

each said underside displacement surface includes at least one upstanding contact rib extending in a direction longitudinal to the collet device, each said contact rib cooperating with the cam surface of the plunger head to reduce frictional contact therebetween as the plunger head reciprocates between the disengaged condition and the engaged condition.

71. (Original) The cleaning tool assembly according to claim 70, wherein

said cam surface of said plunger head is convex-shaped to further reduce frictional contact between with said contact ribs as the plunger head reciprocates between the disengaged condition and the engaged condition.

72. (Original) The cleaning tool assembly according to claim 71, wherein

a contact angle between said cam surface of said plunger head and the contact ribs of the underside displacement surfaces is in the range of between about three (3) degrees per side to about twenty (20) degrees per side.

73. (Original) The cleaning tool assembly according to claim 71, wherein

said cam surface and a respective surface of the each contact rib are substantially smooth to further reduce friction therebetween.

74. (Original) The cleaning tool assembly according to claim 68, wherein

said plunger head is biased toward the disengaged condition, corresponding to the gripping position of the gripping mechanism.

75. (Original) The cleaning tool assembly according to claim 68, further including

an ejection device adapted to facilitate ejection of the cleaning implement when said plunger head is moved to the engaged condition, corresponding to the release position of the gripping mechanism.

76. (Original) The cleaning tool assembly according to claim 75, wherein

said ejection device includes an ejection post extending distally beyond the cam surface thereof, said ejection post contacting the retaining barb during axial movement of the plunger head from the disengaged condition to the engaged condition, displacing the fitment post from the wand opening.

77. (Original) The cleaning tool assembly according to claim 68, further including:

a release device coupled to the plunger mechanism for selective movement of the plunger head between the disengaged and the engaged condition.

78. (Original) The cleaning tool assembly according to claim 77, wherein

said release device includes a slide switch slideably mounted to the maneuvering wand for operation at the handle portion between the disengaged condition and the engaged condition.

79. (Original) The cleaning tool assembly according to claim 78, wherein

said release device further includes a pushrod extending through said wand cavity from proximate the handle portion to proximate the attachment portion, a distal end thereof being

mounted to the plunger head, and an opposite proximal end thereof being mounted to the slide switch for translation of movement from the slide switch to the plunger head.

80. (Original) The cleaning tool assembly according to claim 79, further including:

a biasing device cooperating with the release device to bias the plunger mechanism toward the disengaged condition, corresponding to the gripping position of the gripping mechanism.

81. (Original) The cleaning tool assembly according to claim 80, wherein

said biasing device includes spring retainer plate coupled to the pushrod, and a compression spring in contact with said spring retainer plate to bias the plunger head toward the disengaged condition.

82. (Original) The cleaning tool assembly according to claim 79, wherein

said maneuvering wand is gradually curved, and said pushrod is sufficiently flexible to enable axial movement thereof through the wand cavity between the disengaged condition and the engaged condition, and sufficiently stiff to enable the plunger head to move from the gripping position to the release position.

83. (Original) The cleaning tool assembly according to claim 82, wherein

said maneuvering wand includes a plurality of support bearings spaced-apart along said wand cavity, and cooperating with the pushrod to enable unobstructed axial movement thereof between the disengaged condition and the engaged condition.

84. (Original) The cleaning tool assembly according to claim 83, wherein:

each said support bearing is plate-like, and includes a bearing surface defining a respective pushrod aperture extending therethrough and enabling reciprocal passage of the pushrod.

85. (Original) The cleaning tool assembly according to claim 84, wherein:

each bearing surface of said support bearing is convex shaped to reduce frictional contact with the pushrod during movement between the disengaged condition and the engaged condition.

86. (Original) The cleaning tool assembly according to claim 44, wherein:

said pivotal movement of the longitudinal axis of the fitment post, relative the

longitudinal axis of said gripping mechanism, is substantially limited to not more than about 0 degrees to about twelve (12) degrees.

87. (Original) A cleaning tool assembly adapted to removably mount a cleaning implement thereto, said cleaning implement including a cleaning element mounted to a fitment, said fitment having an elongated post extending axially from the cleaning element, and a retaining barb at a distal end of the elongated post, said tool assembly comprising:

an elongated maneuvering wand having a handle portion and a distal implement attachment end thereof, said attachment end defining a wand opening into a cavity of said wand, and said wand opening being formed and dimensioned for axial insertion of the fitment post therein;

a radially expandable gripping mechanism disposed in said cavity, and adapted for movement between a naturally biased gripping position, releasably gripping the fitment retaining barb through the wand opening, and a release position, radially expanding the gripping mechanism by an amount sufficient to enable axial release of the retaining barb therefrom, said gripping mechanism configured to axially retain said retaining barb therein with an axial retention force; and

a release device including a manual actuation device mounted to the handle portion, and adapted for manual axial movement between a disengaged condition and an engage condition, slideably engaging the gripping mechanism for expansion thereof toward the release position,

wherein said gripping mechanism and said release device being configured to interactively cooperate to substantially minimize frictional drag therebetween in a manner such that a maximum, manual release force, at the actuator device, required to manually move the release device from the disengaged condition to the engaged condition, and thus, the gripping mechanism from the gripping position to the release position, is substantially less than the axial retention force of the gripping mechanism.

88. (Original) The cleaning tool assembly according to claim 87, wherein

said axial retention force is in the range of about five (5) lbf. to about fifteen (15) lbf., and said release force is in the range of about 1.0 lbf. to about 6.0 lbf.

89. (Original) The cleaning tool assembly according to claim 88, wherein

said axial retention force is in the range of about nine (9) lbf. to about eleven (11) lbf., and said release force is in the range of about 1.75 lbf. to about 3.0 lbf.

90. (Original) The cleaning tool assembly according to claim 87, wherein

said gripping mechanism includes an expandable collet device disposed in said cavity, and including a distal gripping portion defining a distal mouth portion formed and dimensioned to axially receive the fitment retaining barb through said wand opening, said distal gripping portion radially expandable between the gripping position and the release position

91. (Original) The cleaning tool assembly according to claim 90, wherein

said release device includes a plunger head, adapted for sliding engagement, with the collet device for selective reciprocating movement thereof along the longitudinal axis of the collet device between a disengaged condition, corresponding to the gripping position of the collet device, and an engaged condition, urging the collet device toward the release position.

92. (Original) The cleaning tool assembly according to claim 91, wherein

said release device further includes a pushrod extending through said wand cavity from proximate the handle portion to proximate the attachment portion thereof, a distal end thereof being mounted to the plunger head, and an opposite proximal end thereof being mounted to the actuator device for translation of movement therefrom to the plunger head.

93. (Original) The cleaning tool assembly according to claim 92, wherein

said maneuvering wand includes a gradually curved portion thereof between the handle portion and the attachment end, and said pushrod is substantially similarly curved at a corresponding portion thereof when positioned in the cavity of the maneuvering wand.

94. (Original) The cleaning tool assembly according to claim 93, wherein

said pushrod is sufficiently flexible to enable axial movement thereof through the wand cavity between the disengaged condition and the engaged condition, and sufficiently stiff to enable the plunger mechanism to engage the collet device from the gripping position to the release position.

95. (Original) The cleaning tool assembly according to claim 94, wherein

said maneuvering wand includes a plurality of support bearings spaced-apart along said wand cavity, and cooperating with the pushrod to enable unobstructed axial movement thereof between the disengaged condition and the engaged condition.

96. (Original) The cleaning tool assembly according to claim 95, wherein

each said support bearing is plate-like, and includes a bearing surface defining a respective aperture enabling reciprocal passage of the pushrod therethrough.

97. (Original) The cleaning tool assembly according to claim 96, wherein

each bearing surface of said support bearing is convex shaped to reduce frictional contact with the pushrod during movement between the disengaged condition and the engaged condition.

98. (Original) The cleaning tool assembly according to claim 97, wherein

a transverse cross-sectional dimension of the pushrod is cross-shaped, having a plurality of rounded edges in a manner reducing frictional contact upon sliding engagement with said bearing surfaces.

99. (Original) The cleaning tool assembly according to claim 92, further including:

a biasing device cooperating with the release device to bias the plunger head toward the disengaged condition.

100. (Original) The cleaning tool assembly according to claim 99, wherein

said biasing device includes spring retainer plate coupled to the pushrod, and a compression spring in contact with said spring retainer plate to bias the plunger head toward the disengaged condition.

101. (Original) The cleaning tool assembly according to claim 92, wherein

said collet device includes a proximal base portion defining a proximal opening into a collet recess thereof, and a plurality of resilient finger members extending distally toward said wand opening, and each said resilient finger member being cantilever mounted thereto for radial movement of a distal tip of the respective finger member between the gripping position and the release position.

102. (Original) The cleaning tool assembly according to claim 101, wherein

the distal tip portions of the finger members cooperating to define said mouth portion, said finger members further being positioned generally radially around a longitudinal axis of the collet device in a manner collectively defining a collet recess therein formed for receipt of said retaining barb of the fitment when in the gripping position.

103. (Original) The cleaning tool assembly according to claim 102, wherein

said plunger head having a transverse cross-sectional dimension configured to extend through said proximal opening of the collet device proximal base portion and into said collet recess for selective reciprocating movement thereof along the longitudinal axis of the collet device between the disengaged condition, corresponding to gripping position of the collet device, and the engaged condition wherein a cam surface of the plunger head contacts an opposed underside displacement surface of the finger members causing displacement of the respective distal tip portions thereof radially outward from the gripping position toward the release position.

104. (Original) The cleaning tool assembly according to claim 103, wherein

each said underside displacement surface includes at least two spaced-apart upstanding contact ribs extending in a direction longitudinal to the collet device, each said contact rib cooperating with the cam surface of the plunger head to reduce frictional contact therebetween as the plunger head reciprocates between the disengaged condition and the engaged condition.

105. (Original) The cleaning tool assembly according to claim 104, wherein

said cam surface at a distal portion of said plunger head is convex-shaped to further reduce frictional contact between with said contact ribs as the plunger head reciprocates between the disengaged condition and the engaged condition.

106. (Original) The cleaning tool assembly according to claim 105, wherein

a contact angle between said cam surface of said plunger head and the contact ribs of the underside displacement surfaces is in the range of between about three (3) degrees per side to about twenty (20) degrees per side.

107. (Original) The cleaning tool assembly according to claim 87, wherein

said actuation device includes a slide switch slideably mounted to the handle portion.

108. (Original) A cleaning tool assembly adapted to removably mount a cleaning implement thereto, said cleaning implement including a cleaning element mounted to a fitment, said fitment having an elongated post extending axially from the cleaning element, and a retaining barb at a distal end of the elongated post, said tool assembly comprising:

an elongated maneuvering wand having a handle portion and a distal implement attachment end thereof, said attachment end defining a wand opening into a cavity of said wand, and said wand opening being formed and dimensioned for axial insertion of the fitment post therein;

a radially expandable gripping collet device disposed in said cavity, and including a distal gripping portion defining a distal mouth portion formed and dimensioned to axially receive the fitment retaining barb through said wand opening, said distal gripping portion radially expandable between a gripping position, releasably gripping the fitment retaining barb, and a release position, radially expanding the mouth portion by an amount sufficient for axial release of the retaining barb therefrom, said collet device being configured to axially retain said retaining barb therein with an axial retention force in the range of about five (5) lbs to about fifteen (15) lbs; and

a release device including a slide switch slideably mounted to the handle portion, and a plunger mechanism adapted for movement between a disengaged condition, corresponding to the gripping position of the collet device, and an engage condition, engaging the collet device for expansion thereof to the release position,

a biasing device biasing the release device toward the disengaged condition;

wherein said collet device, said biasing device and said release device interactively cooperating to substantially minimize frictional contact in a manner such that the axial release force at the slide switch, to engage the release device from the disengaged condition to the engaged condition is in the range of about one (1) lbs to about six (6) lbs.

109. (Original) The cleaning tool assembly according to claim 108, wherein

said release device further includes a pushrod extending through said wand cavity from proximate the handle portion to proximate the attachment portion thereof, a distal end thereof

being mounted to the plunger mechanism, and an opposite proximal end thereof being mounted to the slide switch for translation of movement from the slide switch to the plunger head.

110. (Original) The cleaning tool assembly according to claim 109, wherein

said maneuvering wand includes a gradually curved portion thereof between the handle portion and the attachment end, and said pushrod is substantially similarly curved at a corresponding portion thereof when positioned in the cavity of the maneuvering wand.

111. (Original) The cleaning tool assembly according to claim 110, wherein

said pushrod is sufficiently flexible to enable axial movement thereof through the wand cavity between the disengaged condition and the engaged condition, and sufficiently stiff to enable the plunger mechanism to engage the collet device from the gripping position to the release position.

112. (Original) The cleaning tool assembly according to claim 111, wherein

said maneuvering wand includes a plurality of support bearings spaced-apart along said wand cavity, and cooperating with the pushrod to enable unobstructed axial movement thereof between the disengaged condition and the engaged condition.

113. (Original) The cleaning tool assembly according to claim 112, wherein

each said support bearing is plate-like, and includes a bearing surface defining a respective aperture enabling reciprocal passage of the pushrod therethrough.

114. (Original) The cleaning tool assembly according to claim 113, wherein

each bearing surface of said support bearing is convex shaped to reduce frictional contact with the pushrod during movement between the disengaged condition and the engaged condition.

115. (Original) The cleaning tool assembly according to claim 114, wherein

a transverse cross-sectional dimension of the pushrod is cross-shaped, having a plurality of rounded edges in a manner reducing frictional contact upon sliding engagement with said bearing surfaces.

116. (Original) The cleaning tool assembly according to claim 108, wherein

said collet device includes a proximal base portion defining a proximal opening into a collet recess thereof, and a plurality of resilient finger members extending distally toward said

wand opening, and each said resilient finger member being cantilever mounted thereto for radial movement of a distal tip of the respective finger member between the gripping position and the release position.

117. (Original) The cleaning tool assembly according to claim 116, wherein

the distal tip portions of the finger members cooperating to define said mouth portion, said finger members further being positioned generally radially around a longitudinal axis of the collet device in a manner collectively defining a collet recess therein formed for receipt of said retaining head of the fitment when in the gripping position.

118. (Original) The cleaning tool assembly according to claim 117, wherein

said plunger mechanism includes a plunger head adapted for selective reciprocating movement thereof along the longitudinal axis of the collet device between a disengaged condition, corresponding to the gripping position of the collet device, and an engaged condition, corresponding to the release position of the collet device

119. (Original) The cleaning tool assembly according to claim 118, wherein

said plunger head having a transverse cross-sectional dimension to extend through said proximal opening of the collet device and into said collet recess for selective reciprocating movement thereof along the longitudinal axis of the collet device between the disengaged condition, corresponding to gripping position of the collet device, and the engaged condition wherein a cam surface of the plunger head contacts an opposed underside displacement surface of the finger members causing radial movement the respective contacting regions thereof to move radially outward from the gripping position toward the release position.

120. (Original) The cleaning tool assembly according to claim 119, wherein

each said underside displacement surface includes at least two spaced-apart upstanding contact ribs extending in a direction longitudinal to the collet device, each said contact rib cooperating with the cam surface of the plunger head to reduce frictional contact therebetween as the plunger head reciprocates between the disengaged condition and the engaged condition.

121. (Original) The cleaning tool assembly according to claim 120, wherein

said cam surface of said plunger head is convex-shaped to further reduce frictional contact between with said contact ribs as the plunger head reciprocates between the disengaged condition and the engaged condition.

122. (Original) The cleaning tool assembly according to claim 121, wherein

a contact angle between said cam surface of said plunger head and the contact ribs of the underside displacement surfaces is in the range of between about three (3) degrees per side to about twenty (20) degrees per side.